Uintah Basin Energy and Transportation Study

Infrastructure and General Governmental Appropriations Subcommittee February 8, 2013

Cory Pope Program Development Director Utah Department of Transportation

A Partnership

 Uintah Transportation Special Service 	District
(UTSSD)	\$700k
 Duchesne Special Service District 	\$100k
 Uintah County 	\$100k

• UDOT <u>\$200k</u>

\$1.1M

Study Context

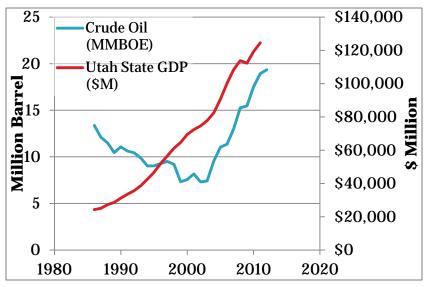
- Utah has significant oil and gas resources
- Higher quality and shallower wells
- Strong potential for job creation and economic growth
- Competition from other locations

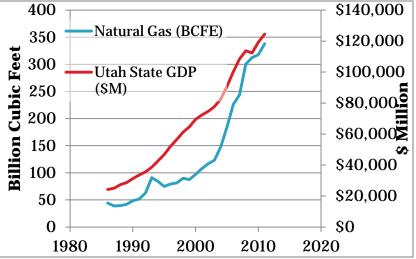


Source: Energy Information Administration based on data from various published studies Updated: March 10, 2010

Study Context

- Oil and gas extraction & mining comprise nearly 3% of State economic output
- Adds \$1 B per year to State economic activity
- Uinta Basin produces about 70% of Utah's oil and gas
- Oil and gas industry directly or indirectly responsible for nearly 50% of Basin employment



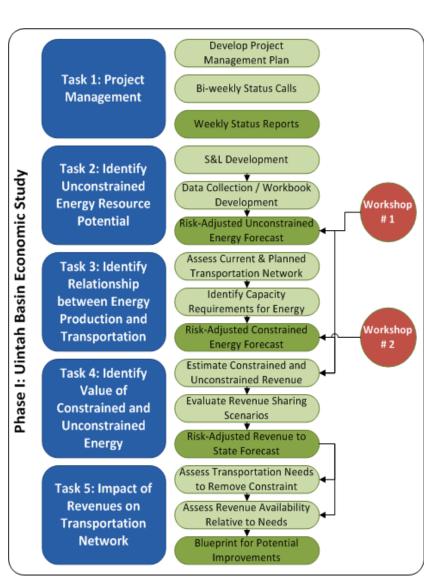


Study Objective

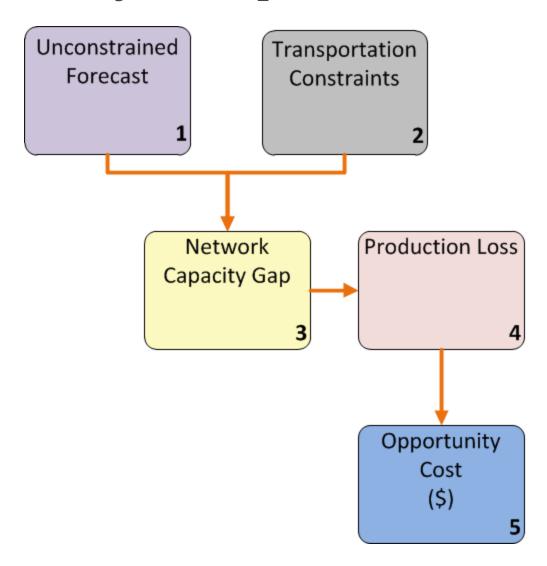
- What is the likely path of growth for energy production in the Basin?
- Is transportation capacity limiting this growth?
- If so, what is the opportunity cost of failing to address transportation constraints?

Study Characteristics

- Incorporates Risk Analysis.
- Transparent, repeatable process
- Combines analytical models with academic and business knowledge
- Guided by a Steering Committee



Five Primary Components



Unconstrained Forecast: Based on Extensive Data Collection

Extensive Data Collection

Crude Oil	
Category	Author/Source
Academic	Dr. John McLennan, University of Utah
Academic	Jon Wilkey, University of Utah, Institute for Clean and Secure Energy
Academic	Michael Hogue, University of Utah, Institute for Clean and Secure Energy
Academic	Robert Bacon and Silvana Tordo
Academic/ Government	J. R. Dyni, U.S. Geological Survey; published in Oil Shale
Academic/ Government	Prepared For U.S. Department Of Energy by Utah Heavy Oil Program, Institute For Clean And Secure Energy, The University Of Utah
Firm	Bill Barrett Corporation
Firm	Ed Ryen, PE HDR Engineering
Firm	Newfield, Inc.
Firm	SWCA Environmental Consultants
Firm	USTAR
Government	UDOT
Government	Energy Information Administration
Government	Utah Geological Survey
Non-Governmental	Robert Bacon and C:1
sanization	Assistance

Interviews with Industry Participants

Entity	
Anadarko	
Berry Petroleum Co	
Bill Barrett Corp	
Citation Oil & Gas Corp	
ConocoPhillips	
EOG	
EP Energy	
GASCO	
QEP	
Ute Energy (acquired by Crescent Point Energy)-	
XTO	
Utah Petroleum Association	
Western Energy Alliance	
Oil Shale Operations	
Oil Sands Operations	

"Transportation limitations in the (Uinta)
Basin mean we lose about 15% of the
market price for crude oil."

From Industry Interview

Unconstrained Forecast: Significant Available Resources

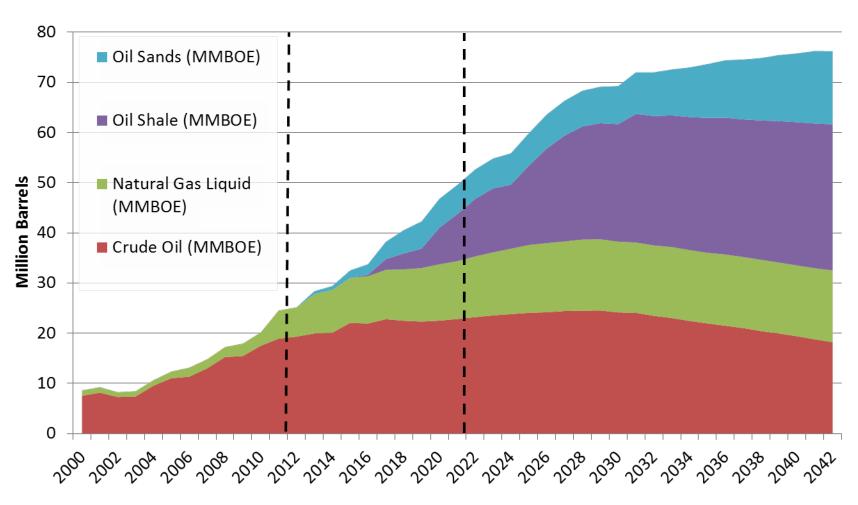
Resource	Estimated Undisco Estimated Reserves	Source		
	Low	Mid	High	
Crude Oil + NGL	200 Million BBL (MMBOE)	550 MMBOE	700 MMBOE	EIA & USGS
Natural Gas	4,000 Billion Cubic Feet Equivalent (BCFE)	18,000 BCFE	50,000 BCFE	EIA & USGS
Oil Shale*	77,000 MMBOE	111,000 MMBOE	226,000 MMBOE	UGS
Oil Sands**	11,000 MMBOE	11,500 MMBOE	12,000 MMBOE	Blackett Study (1996)

MMBOE = Million Barrels of Oil Equivalent, BCFE = Billion Cubic Feet Equivalent.

^{*} All Oil Shale, surface minable oil shale considered in this study as a "likely to be extracted" resource estimated to be 51,000 MMBOE, or which prospective producers indicated about 8,700 MMBOE in Contingent Resources on existing holdings.

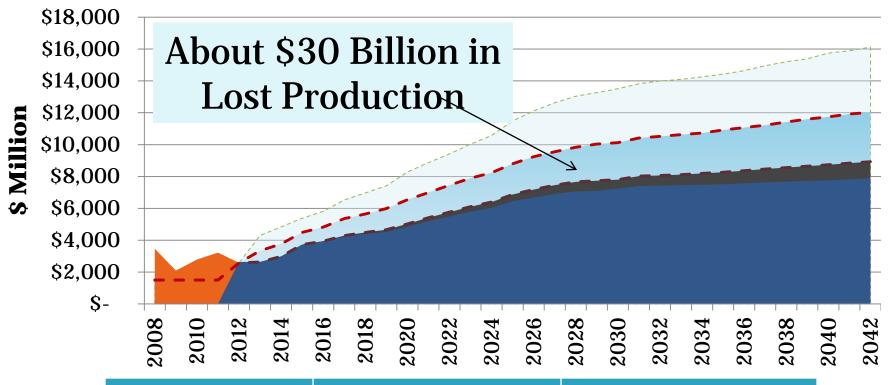
^{**} Prospective producers indicated about 950 MMBOE in Contingent Resources on existing holdings

Unconstrained Forecast: Production could double by 2022



Network Capacities 91 Daggett Gas Summit Gas E -20% Z -15% Liquids E -20% 1% Gas W -20% Wasatch **US-40 East -25%** Duchespe Uintah **US-40 West -15%** Legend **US-40 + Local Roads** 191 Roadway Rail South Carbon Rail 40% **Pipeline Liquid** Excess Capacity: Roadway in 2020 based on **Pipeline Gas UDOT data, Pipeline 2011 HDR Estimates**

Production Loss Due to Transportation Constraints



Forecast Level	Total (Undiscounted)	Present Value @ 3%
Low	\$14,734 million	\$8,128 million
Mid	690 097 million	015 700 : : : :
MIU	\$29,037 million	\$15,762 million

Opportunity Costs – Bottom Line (in \$MM)

Revenues and User Benefits		Environmental and Social Costs		l Macroeconomic Impact	
Profit, Rents, Dividends and Private Royalties*	\$3,784	Site Emissions and Eco Impacts	(\$1,246)	Total Regional Output	\$34,794
State and Local Tax Revenue	\$2,756	Vehicle Emissions		Total Labor Income	\$11,791
User Cost Savings	\$4,943	Safety Impacts	(\$101)	Long-term Jobs**	26,802
Total	\$11,483	Total	(\$1,371)		

^{*} Represents the portion of total macroeconomic output that is additional private citizen/corporate "profit" net of expenses and resource depletion.

^{**} Assumes a 10-year term of employment

What Do these Numbers Mean?

- Average Annual Production of over \$1 B means:
 - About 1% of the State of Utah GDP
 - About 1/3rd of 2011 total Basin production
 - Over 35% increase in GDP from oil and gas sector
- Average Annual Tax Revenue of \$180 M means:
 - About 4% of total State tax collection
 - About \$3,500 for every resident of the two-Counties
 - About \$25 Million to local schools each year –
 20% of public education spending in Duchesne and Uintah Counties
- Creation of 26,800 jobs means:
 - About 2.5% of total jobs in the State of Utah
 - About doubling local employment over 30 years

Thank You